Form 3160-5
(August 2007)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

OCD Artesia

FORM APPROVED
OMB NO. 1004-0135
Expires: July 31, 2010

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE - Other instructions on reverse side.

5. Lease Serial No.
NMNM94839

6. If Indian, Allottee or Tribe Name

7. If Unit or CA/Agreement, Name and/or No.

1. Type of Well
☒ Oil Well ☐ Gas Well ☐ Other

8. Well Name and No.
WIGEON 23 FED COM 4H

2. Name of Operator
CIMAREX ENERGY COMPANY OF CO
Contact: ARICKA EASTERLING
E-Mail: aeasterling@cimarex.com

9. API Well No.
30-015-43156-00-X1

3a. Address
202 S CHEYENNE AVE SUITE 1000
TULSA, OK 74103.4346

3b. Phone No. (include area code)
Ph: 918-560-7060

10. Field and Pool, or Exploratory
WILDCAT

4. Location of Well *(Footage, Sec., T., R., M., or Survey Description)*
Sec 23 T25S R26E NENE 305FNL 757FEL
32.071865 N Lat, 104.152660 W Lon

11. County or Parish, and State
EDDY COUNTY, NM

12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Fracture Treat	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other Change to Original APD
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

13. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

Cimarex respectfully request approval to change the original drilling plan for the above referenced well. Cimarex proposes to change the BHL there by changing the directional plan.

Approved:
BHL 330 FSL & 660 FEL Sec. 23-25S-26E
Proposed:
BHL 330 FSL & 660 FEL Sec. 26-25S-26E

Please see attached proposed drilling plan and other related documents.

NM OIL CONSERVATION
ARTESIA DISTRICT
FEB 17 2016
RECEIVED

Accepted for record
NMOCD

14. I hereby certify that the foregoing is true and correct.
Electronic Submission #323862 verified by the BLM Well Information System
For CIMAREX ENERGY COMPANY OF CO, sent to the Carlsbad
Committed to AFMSS for processing by JAMIE RHOADES on 12/09/2015 (16JLR0082SE)

Name *(Printed/Typed)* ARICKA EASTERLING — Title REGULATORY ANALYST

Signature (Electronic Submission) — Date 11/18/2015

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By CHARLES NIMMER — Title PETROLEUM ENGINEER — Date 02/09/2016

Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Office Carlsbad

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

**** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ****

1. Geological Formations

TVD of target 7,262 Pilot Hole TD N/A
MD at TD 16,983 Deepest expected fresh water

Formation	Depth (TVD) from KB	Water/Mineral Bearing/Target Zone	Hazards
Rustler	0	N/A	
OSE Groundwater	50	N/A	
Top Salt	1063	N/A	
Base Salt	1720	N/A	
Top Delaware	1921	N/A	
Cherry Canyon	2882	N/A	
Brushy Canyon	3935	N/A	
Brushy Canyon Lower	5137	N/A	
Bone Spring	5422	Hydrocarbons	
Bone Spring "A" Shale	5620	Hydrocarbons	
Bone Spring "C" Shale	5878	Hydrocarbons	
1st Bone Spring Ss	6420	Hydrocarbons	
2nd Bone Spring LS	6761	Hydrocarbons	
2nd Bone Spring SS	6944	Hydrocarbons	
2nd BS Ss Horz Target	7262	Hydrocarbons	
3rd BS Limestone	7360	Hydrocarbons	

2. Casing Program

Hole Size	Casing Depth From	Casing Depth To	Casing Size	Weight (lb/ft)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
17 1/2	0	400	13-3/8"	48.00	H-40/J-55 Hybrid	ST&C	4.04	9.45	16.77
12 1/4	0	1900	9-5/8"	36.00	J-55	LT&C	2.00	3.49	6.62
8 3/4	0	6695	5-1/2"	17.00	L-80	LT&C	1.96	2.42	2.74
8 3/4	6695	16983	5-1/2"	17.00	L-80	BT&C	1.81	2.23	41.19
				BLM Minimum Safety Factor			1.125	1	1.6 Dry 1.8 Wet

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Does casing meet API specifications? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	N
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	N
Is well within the designated 4 string boundary.	N
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3rd string cement tied back 500' into previous casing?	N
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	N
Is 2nd string set 100' to 600' below the base of salt?	N
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	N
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	N
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	N

3. Cementing Program

Casing	# Sks	Wt. lb/gal	Yld ft3/sack	H2O gal/sk	500# Comp. Strength (hours)	Slurry Description
Surface	78	14.80	1.34	6.32	9.5	Lead: Class C + LCM
	195	14.80	1.34	6.32	9.5	Tail: Class C + LCM
Intermediate	361	12.90	1.88	9.65	12	Lead: 35:65 (Poz:C) + Salt + Bentonite
	111	14.80	1.34	6.32	9.5	Tail: Class C + LCM
Production	668	10.80	2.35	9.60	17:43	Lead: Tuned Light I Class H
	2200	14.20	1.30	5.86	14:30	Tail: 50:50 (Poz:H) + Salt + Bentonite + Fluid Loss + Dispersant + SMS

Casing String	TOC	% Excess
Surface	0	31
Intermediate	0	44
Production	1700	15

May need additional Cement. % excess on surface calculates 10% and on Production calculates 14%.

4. Pressure Control Equipment

	A variance is requested for the use of a diverter on the surface casing. See attached for schematic.

BOP installed and tested before drilling which hole?	Size	Min Required WP	Type		Tested To
12 1/4	13 5/8	2M	Annular	X	50% of working pressure
			Blind Ram		2M
			Pipe Ram		
			Double Ram	X	
			Other		
8 3/4	13 5/8	3M	Annular	X	50% of working pressure
			Blind Ram		3M
			Pipe Ram		
			Double Ram	X	
			Other		

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. See attached schematics.

	Formation integrity test will be performed per Onshore Order #2. On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i.	
X	A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart..	
	N	Are anchors required by manufacturer?

5. Mud Program

Depth	Type	Weight (ppg)	Viscosity	Water Loss
0' to 400'	FW Spud Mud	8.30 - 8.80	28	N/C
400' to 1900'	Brine Water	9.70 - 10.20	30-32	N/C
1900' to 16983'	FW/Cut Brine	8.70 - 9.20	30-32	N/C

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times.

What will be used to monitor the loss or gain of fluid?	PVT/Pason/Visual Monitoring

6. Logging and Testing Procedures

	Logging, Coring and Testing
X	Will run GR/CNL fromTD to surface (horizontal well – vertical portion of hole). Stated logs run will be in the Completion Report and submitted to the BLM.
	No logs are planned based on well control or offset log information.
	Drill stem test?
	Coring?

Additional Logs Planned	Interval

7. Drilling Conditions

Condition	
BH Pressure at deepest TVD	3474 psi
Abnormal Temperature	No

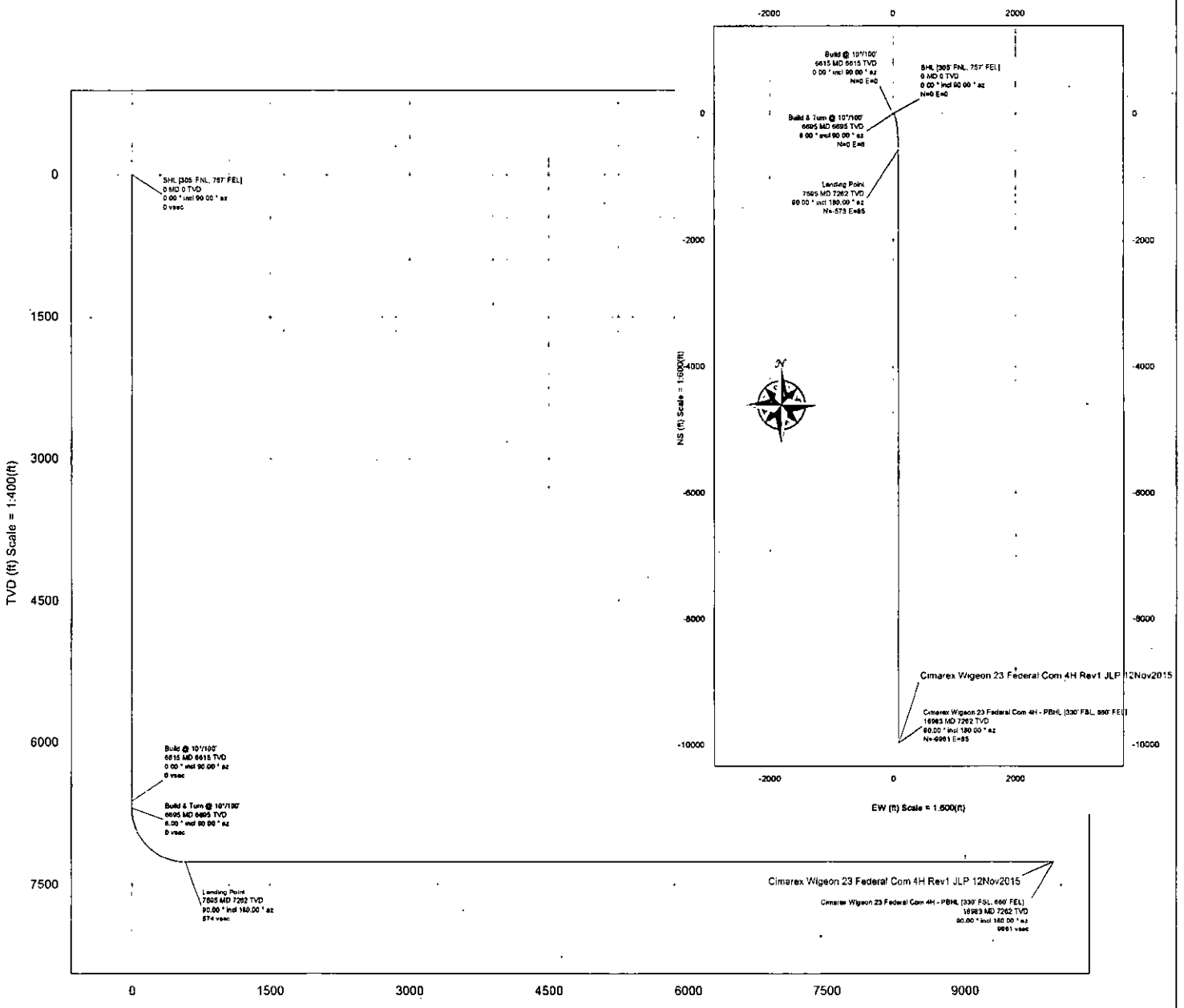
	Hydrogen Sulfide (H2S) monitors will be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM.
X	H2S is present
X	H2S plan is attached

8. Other Facets of Operation

Schlumberger **Cimarex** Rev1 CIMAREX

Borehole:	Well:	Field:	Structure:
Original Borehole	Wigeon 23 Federal Com 4H	NM Eddy County (NAD 83)	Wigeon 23 Federal Com 4H

Gravity & Magnetic Parameters					Surface Location	NAD83 New Mexico State Plane, Eastern Zone, US Feet				Miscellaneous			
Model:	HDGM 2015	Dip: 59.868°	Date:	12-Nov-2015	Lat:	N 32 7 16.45	Northing:	403071.87ftUS	Grid Conv:	0.040°	Slot: 4H	TVD Ref:	Unknown(3281.1ft above MSL)
MagDec:	7.626°	FS: 48172.987nT	Gravity FS:	998.438mgn (9.80665 Based)	Lon:	W 104 15 26.60	Easting:	564848.14ftUS	Scale Fact:	0.99990972	Plan: Rev1 JLP 12Nov2015		



Vertical Section (ft) Azim = 179.509° Scale = 1:400(ft) Origin = 0N/-S, 0E/-W

Critical Points

Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)/S(-)	E(+)/W(-)	DLS
SHL [305' FNL, 757' FEL]	0.00	0.00	90.00	0.00	0.00	0.00	0.00	
Build @ 10°/100'	6614.88	0.00	90.00	6614.88	0.00	0.00	0.00	0.00
Build & Turn @ 10°/100'	6694.88	8.00	90.00	6694.62	0.05	0.00	5.58	10.00
Landing Point	7584.88	90.00	180.00	7262.00	573.87	-572.98	55.31	10.00
Cimarex Wigeon 23 Federal Com 4H - PBHL [330' FSL, 660' FEL]	16982.93	90.00	180.00	7262.00	9961.37	-9961.01	55.28	0.00

Grid
True
Mag

Grid North
Tot Corr (M->G 7.586°)
Mag Dec (7.626°)
Grid Conv (0.040°)

CONTROLLED

Plan ref:	Cimarex Wigeon 23 Federal Com 4H Rev1 JLP 12Nov2015
Drawing ref:	
Copy number:	of 5
Date:	12-Nov-2015

A	Client	
B	Client	
C	Client	
D	Office	
E	Office	

Copy Number for

Schlumberger

Cimarex Wigeon 23 Federal Com 4H Rev1 JLP 12Nov2015 Proposal
Geodetic Report
(Non-Def Plan)

CIMAREX

Report Date:	November 12, 2015 - 02:56 PM	**Survey / DLS Computation:**	Minimum Curvature / Lubinski
Client:	Cimarex	**Vertical Section Azimuth:**	179.509 ° (Grid North)
Field:	NM Eddy County (NAD 83)	**Vertical Section Origin:**	0.000 ft, 0.000 ft
Structure / Slot:	Cimarex Wigeon 23 Federal Com 4H / Cimarex Wigeon 23 Federal Com 4H	**TVD Reference Datum:**	Unknown
Well:	Cimarex Wigeon 23 Federal Com 4H	**TVD Reference Elevation:**	3281.100 ft above MSL
Borehole:	Original Borehole	**Seabed / Ground Elevation:**	3281.100 ft above MSL
UWI / API#:	Unknown / Unknown	**Magnetic Declination:**	7.626 °
Survey Name:	Cimarex Wigeon 23 Federal Com 4H Rev1 JLP 12Nov2015	**Total Gravity Field Strength:**	998.4385mgn (9.80665 Based)
Survey Date:	November 12, 2015	**Gravity Model:**	GARM
Tort / AHD / DDI / ERD Ratio:	98.000 ° / 9982.538 ft / 6.359 / 1.375	**Total Magnetic Field Strength:**	48172.987 nT
Coordinate Reference System:	NAD83 New Mexico State Plane, Eastern Zone, US Feet	**Magnetic Dip Angle:**	59.868 °
Location Lat / Long:	N 32° 7' 18.64603", W 104° 15' 26.60056"	**Declination Date:**	November 12, 2015
Location Grid N/E Y/X:	N 408071.970 ftUS, E 564848.140 ftUS	**Magnetic Declination Model:**	HDGM 2015
CRS Grid Convergence Angle:	0.0404 °	**North Reference:**	Grid North
Grid Scale Factor:	0.99990972	**Grid Convergence Used:**	0.0404 °
Version / Patch:	2.8.572.0	**Total Corr Mag North->Grid North:**	7.5857 °
		Local Coord Referenced To:	Structure Reference Point

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
SHL [305' FNL, 757' FEL]	0.00	0.00	90.00	0.00	0.00	0.00	0.00	N/A	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	100.00	0.00	90.00	100.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	200.00	0.00	90.00	200.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	300.00	0.00	90.00	300.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	400.00	0.00	90.00	400.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	500.00	0.00	90.00	500.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	600.00	0.00	90.00	600.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	700.00	0.00	90.00	700.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	800.00	0.00	90.00	800.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	900.00	0.00	90.00	900.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	1000.00	0.00	90.00	1000.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	1100.00	0.00	90.00	1100.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	1200.00	0.00	90.00	1200.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	1300.00	0.00	90.00	1300.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	1400.00	0.00	90.00	1400.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	1500.00	0.00	90.00	1500.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	1600.00	0.00	90.00	1600.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	1700.00	0.00	90.00	1700.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	1800.00	0.00	90.00	1800.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	1900.00	0.00	90.00	1900.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	2000.00	0.00	90.00	2000.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	2100.00	0.00	90.00	2100.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	2200.00	0.00	90.00	2200.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	2300.00	0.00	90.00	2300.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	2400.00	0.00	90.00	2400.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	2500.00	0.00	90.00	2500.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	2600.00	0.00	90.00	2600.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	2700.00	0.00	90.00	2700.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	2800.00	*0.00*	*90.00*	*2800.00*	*0.00*	*0.00*	*0.00*	*0.00*	*408071.97*	*564848.14*	*N 32 7 18.65*	*W 104 15 26.60*
	2900.00	0.00	90.00	2900.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	3000.00	0.00	90.00	3000.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	3100.00	0.00	90.00	3100.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	3200.00	0.00	90.00	3200.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	3300.00	0.00	90.00	3300.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	3400.00	0.00	90.00	3400.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	3500.00	0.00	90.00	3500.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	3600.00	0.00	90.00	3600.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	3700.00	0.00	90.00	3700.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	3800.00	0.00	90.00	3800.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	3900.00	0.00	90.00	3900.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	4000.00	0.00	90.00	4000.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	4100.00	0.00	90.00	4100.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	4200.00	0.00	90.00	4200.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	4300.00	0.00	90.00	4300.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	4400.00	0.00	90.00	4400.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	4500.00	0.00	90.00	4500.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	4600.00	0.00	90.00	4600.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	4700.00	0.00	90.00	4700.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	4800.00	0.00	90.00	4800.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	4900.00	0.00	90.00	4900.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	5000.00	0.00	90.00	5000.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	5100.00	0.00	90.00	5100.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	5200.00	0.00	90.00	5200.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	5300.00	0.00	90.00	5300.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	5400.00	0.00	90.00	5400.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	5500.00	0.00	90.00	5500.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	5600.00	*0.00*	*90.00*	*5600.00*	*0.00*	*0.00*	*0.00*	*0.00*	*408071.97*	*564848.14*	*N 32 7 18.65*	*W 104 15 26.60*
	5700.00	0.00	90.00	5700.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	5800.00	0.00	90.00	5800.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	5900.00	0.00	90.00	5900.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	6000.00	0.00	90.00	6000.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	6100.00	0.00	90.00	6100.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	6200.00	0.00	90.00	6200.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	6300.00	0.00	90.00	6300.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	6400.00	0.00	90.00	6400.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	6500.00	0.00	90.00	6500.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
	6600.00	0.00	90.00	6600.00	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
Build @ 10°/100'	6614.88	0.00	90.00	6614.88	0.00	0.00	0.00	0.00	408071.97	564848.14	N 32 7 18.65	W 104 15 26.60
Build & Turn @ 10°/100'	6694.88	8.00	90.00	6694.62	0.05	0.00	5.58	10.00	408071.97	564853.72	N 32 7 18.65	W 104 15 26.54

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	6700.00	8.02	93.67	6699.69	0.08	-0.02	6.29	10.00	408071.95	564854.43	N 32 7 18.65	W 104 15 26.53
	6800.00	13.18	143.13	6798.13	9.79	-9.62	20.12	10.00	408062.35	564868.26	N 32 7 18.55	W 104 15 26.37
	6900.00	21.95	159.60	6893.43	36.61	-36.33	33.52	10.00	408035.65	564881.65	N 32 7 18.29	W 104 15 26.21
	7000.00	31.45	166.71	6982.69	79.73	-79.34	46.06	10.00	407992.64	564894.20	N 32 7 17.86	W 104 15 26.07
	7100.00	41.16	170.75	7063.20	137.84	-137.36	57.38	10.00	407934.63	564905.51	N 32 7 17.29	W 104 15 25.93
	7200.00	50.97	173.46	7132.50	209.17	-208.60	67.12	10.00	407863.38	564915.25	N 32 7 16.58	W 104 15 25.82
	7300.00	60.83	175.50	7188.50	291.56	-290.92	74.99	10.00	407781.07	564923.12	N 32 7 15.77	W 104 15 25.73
	7400.00	70.71	177.18	7229.50	382.49	-381.81	80.75	10.00	407690.19	564928.88	N 32 7 14.87	W 104 15 25.66
	7500.00	80.61	178.67	7254.24	479.21	-478.51	84.22	10.00	407593.50	564932.36	N 32 7 13.91	W 104 15 25.63
Landing Point	7594.88	90.00	180.00	7262.00	573.67	-572.96	85.31	10.00	407499.06	564933.45	N 32 7 12.98	W 104 15 25.61
	7600.00	90.00	180.00	7262.00	578.79	-578.08	85.31	0.00	407493.95	564933.45	N 32 7 12.93	W 104 15 25.61
	7700.00	90.00	180.00	7262.00	678.78	-678.08	85.31	0.00	407393.95	564933.45	N 32 7 11.94	W 104 15 25.61
	7800.00	90.00	180.00	7262.00	778.78	-778.08	85.31	0.00	407293.96	564933.45	N 32 7 10.95	W 104 15 25.61
	7900.00	90.00	180.00	7262.00	878.78	-878.08	85.31	0.00	407193.97	564933.45	N 32 7 9.96	W 104 15 25.62
	8000.00	90.00	180.00	7262.00	978.77	-978.08	85.31	0.00	407093.98	564933.44	N 32 7 8.97	W 104 15 25.62
	8100.00	90.00	180.00	7262.00	1078.77	-1078.08	85.31	0.00	406993.99	564933.44	N 32 7 7.98	W 104 15 25.62
	8200.00	90.00	180.00	7262.00	1178.76	-1178.08	85.31	0.00	406894.00	564933.44	N 32 7 6.99	W 104 15 25.62
	8300.00	90.00	180.00	7262.00	1278.76	-1278.08	85.31	0.00	406794.01	564933.44	N 32 7 6.00	W 104 15 25.62
	8400.00	90.00	180.00	7262.00	1378.76	-1378.08	85.31	0.00	406694.02	564933.44	N 32 7 5.01	W 104 15 25.62
	8500.00	90.00	180.00	7262.00	1478.75	-1478.08	85.31	0.00	406594.03	564933.44	N 32 7 4.02	W 104 15 25.62
	8600.00	90.00	180.00	7262.00	1578.75	-1578.08	85.31	0.00	406494.04	564933.44	N 32 7 3.03	W 104 15 25.62
	8700.00	90.00	180.00	7262.00	1678.75	-1678.08	85.31	0.00	406394.05	564933.44	N 32 7 2.04	W 104 15 25.62
	8800.00	90.00	180.00	7262.00	1778.74	-1778.08	85.31	0.00	406294.06	564933.44	N 32 7 1.05	W 104 15 25.62
	8900.00	90.00	180.00	7262.00	1878.74	-1878.08	85.31	0.00	406194.07	564933.44	N 32 7 0.06	W 104 15 25.62
	9000.00	90.00	180.00	7262.00	1978.74	-1978.08	85.31	0.00	406094.07	564933.44	N 32 6 59.07	W 104 15 25.62
	9100.00	90.00	180.00	7262.00	2078.73	-2078.08	85.31	0.00	405994.08	564933.44	N 32 6 58.08	W 104 15 25.63
	9200.00	90.00	180.00	7262.00	2178.73	-2178.08	85.31	0.00	405894.09	564933.44	N 32 6 57.09	W 104 15 25.63
	9300.00	90.00	180.00	7262.00	2278.72	-2278.08	85.31	0.00	405794.10	564933.44	N 32 6 56.10	W 104 15 25.63
	9400.00	90.00	180.00	7262.00	2378.72	-2378.08	85.31	0.00	405694.11	564933.44	N 32 6 55.11	W 104 15 25.63
	9500.00	90.00	180.00	7262.00	2478.72	-2478.08	85.31	0.00	405594.12	564933.44	N 32 6 54.12	W 104 15 25.63
	9600.00	90.00	180.00	7262.00	2578.71	-2578.08	85.31	0.00	405494.13	564933.44	N 32 6 53.13	W 104 15 25.63
	9700.00	90.00	180.00	7262.00	2678.71	-2678.08	85.31	0.00	405394.14	564933.44	N 32 6 52.15	W 104 15 25.63
	9800.00	90.00	180.00	7262.00	2778.71	-2778.08	85.31	0.00	405294.15	564933.44	N 32 6 51.16	W 104 15 25.63
	9900.00	90.00	180.00	7262.00	2878.70	-2878.08	85.31	0.00	405194.16	564933.44	N 32 6 50.17	W 104 15 25.63
	10000.00	90.00	180.00	7262.00	2978.70	-2978.08	85.30	0.00	405094.17	564933.44	N 32 6 49.18	W 104 15 25.63
	10100.00	90.00	180.00	7262.00	3078.70	-3078.08	85.30	0.00	404994.18	564933.44	N 32 6 48.19	W 104 15 25.63
	10200.00	90.00	180.00	7262.00	3178.69	-3178.08	85.30	0.00	404894.19	564933.44	N 32 6 47.20	W 104 15 25.63
	10300.00	90.00	180.00	7262.00	3278.69	-3278.08	85.30	0.00	404794.19	564933.44	N 32 6 46.21	W 104 15 25.64
	10400.00	90.00	180.00	7262.00	3378.68	-3378.08	85.30	0.00	404694.20	564933.44	N 32 6 45.22	W 104 15 25.64
	10500.00	90.00	180.00	7262.00	3478.68	-3478.08	85.30	0.00	404594.21	564933.44	N 32 6 44.23	W 104 15 25.64
	10600.00	90.00	180.00	7262.00	3578.68	-3578.08	85.30	0.00	404494.22	564933.43	N 32 6 43.24	W 104 15 25.64
	10700.00	90.00	180.00	7262.00	3678.67	-3678.08	85.30	0.00	404394.23	564933.43	N 32 6 42.25	W 104 15 25.64
	10800.00	90.00	180.00	7262.00	3778.67	-3778.08	85.30	0.00	404294.24	564933.43	N 32 6 41.26	W 104 15 25.64
	10900.00	90.00	180.00	7262.00	3878.67	-3878.08	85.30	0.00	404194.25	564933.43	N 32 6 40.27	W 104 15 25.64
	11000.00	90.00	180.00	7262.00	3978.66	-3978.08	85.30	0.00	404094.26	564933.43	N 32 6 39.28	W 104 15 25.64
	11100.00	90.00	180.00	7262.00	4078.66	-4078.08	85.30	0.00	403994.27	564933.43	N 32 6 38.29	W 104 15 25.64
	11200.00	90.00	180.00	7262.00	4178.65	-4178.08	85.30	0.00	403894.28	564933.43	N 32 6 37.30	W 104 15 25.64
	11300.00	90.00	180.00	7262.00	4278.65	-4278.08	85.30	0.00	403794.29	564933.43	N 32 6 36.31	W 104 15 25.64

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	11400.00	90.00	180.00	7262.00	4378.65	-4378.08	85.30	0.00	403694.30	564933.43	N 32 6 35.32	W 104 15 25.64
	11500.00	90.00	180.00	7262.00	4478.64	-4478.08	85.30	0.00	403594.31	564933.43	N 32 6 34.33	W 104 15 25.65
	11600.00	90.00	180.00	7262.00	4578.64	-4578.08	85.30	0.00	403494.31	564933.43	N 32 6 33.34	W 104 15 25.65
	11700.00	90.00	180.00	7262.00	4678.64	-4678.08	85.30	0.00	403394.32	564933.43	N 32 6 32.35	W 104 15 25.65
	11800.00	90.00	180.00	7262.00	4778.63	-4778.08	85.30	0.00	403294.33	564933.43	N 32 6 31.36	W 104 15 25.65
	11900.00	90.00	180.00	7262.00	4878.63	-4878.08	85.30	0.00	403194.34	564933.43	N 32 6 30.38	W 104 15 25.65
	12000.00	90.00	180.00	7262.00	4978.63	-4978.08	85.30	0.00	403094.35	564933.43	N 32 6 29.39	W 104 15 25.65
	12100.00	90.00	180.00	7262.00	5078.62	-5078.08	85.30	0.00	402994.36	564933.43	N 32 6 28.40	W 104 15 25.65
	12200.00	90.00	180.00	7262.00	5178.62	-5178.08	85.30	0.00	402894.37	564933.43	N 32 6 27.41	W 104 15 25.65
	12300.00	90.00	180.00	7262.00	5278.61	-5278.08	85.30	0.00	402794.38	564933.43	N 32 6 26.42	W 104 15 25.65
	12400.00	90.00	180.00	7262.00	5378.61	-5378.08	85.30	0.00	402694.39	564933.43	N 32 6 25.43	W 104 15 25.65
	12500.00	90.00	180.00	7262.00	5478.61	-5478.08	85.30	0.00	402594.40	564933.43	N 32 6 24.44	W 104 15 25.65
	12600.00	90.00	180.00	7262.00	5578.60	-5578.08	85.29	0.00	402494.41	564933.43	N 32 6 23.45	W 104 15 25.65
	12700.00	90.00	180.00	7262.00	5678.60	-5678.08	85.29	0.00	402394.42	564933.43	N 32 6 22.46	W 104 15 25.66
	12800.00	90.00	180.00	7262.00	5778.60	-5778.08	85.29	0.00	402294.43	564933.43	N 32 6 21.47	W 104 15 25.66
	12900.00	90.00	180.00	7262.00	5878.59	-5878.08	85.29	0.00	402194.43	564933.43	N 32 6 20.48	W 104 15 25.66
	13000.00	90.00	180.00	7262.00	5978.59	-5978.08	85.29	0.00	402094.44	564933.43	N 32 6 19.49	W 104 15 25.66
	13100.00	90.00	180.00	7262.00	6078.59	-6078.08	85.29	0.00	401994.45	564933.42	N 32 6 18.50	W 104 15 25.66
	13200.00	90.00	180.00	7262.00	6178.58	-6178.08	85.29	0.00	401894.46	564933.42	N 32 6 17.51	W 104 15 25.66
	13300.00	90.00	180.00	7262.00	6278.58	-6278.08	85.29	0.00	401794.47	564933.42	N 32 6 16.52	W 104 15 25.66
	13400.00	90.00	180.00	7262.00	6378.57	-6378.08	85.29	0.00	401694.48	564933.42	N 32 6 15.53	W 104 15 25.66
	13500.00	90.00	180.00	7262.00	6478.57	-6478.08	85.29	0.00	401594.49	564933.42	N 32 6 14.54	W 104 15 25.66
	13600.00	90.00	180.00	7262.00	6578.57	-6578.08	85.29	0.00	401494.50	564933.42	N 32 6 13.55	W 104 15 25.66
	13700.00	90.00	180.00	7262.00	6678.56	-6678.08	85.29	0.00	401394.51	564933.42	N 32 6 12.56	W 104 15 25.66
	13800.00	90.00	180.00	7262.00	6778.56	-6778.08	85.29	0.00	401294.52	564933.42	N 32 6 11.57	W 104 15 25.66
	13900.00	90.00	180.00	7262.00	6878.56	-6878.08	85.29	0.00	401194.53	564933.42	N 32 6 10.58	W 104 15 25.67
	14000.00	90.00	180.00	7262.00	6978.55	-6978.08	85.29	0.00	401094.54	564933.42	N 32 6 9.60	W 104 15 25.67
	14100.00	90.00	180.00	7262.00	7078.55	-7078.08	85.29	0.00	400994.55	564933.42	N 32 6 8.61	W 104 15 25.67
	14200.00	90.00	180.00	7262.00	7178.54	-7178.08	85.29	0.00	400894.55	564933.42	N 32 6 7.62	W 104 15 25.67
	14300.00	90.00	180.00	7262.00	7278.54	-7278.08	85.29	0.00	400794.56	564933.42	N 32 6 6.63	W 104 15 25.67
	14400.00	90.00	180.00	7262.00	7378.54	-7378.08	85.29	0.00	400694.57	564933.42	N 32 6 5.64	W 104 15 25.67
	14500.00	90.00	180.00	7262.00	7478.53	-7478.08	85.29	0.00	400594.58	564933.42	N 32 6 4.65	W 104 15 25.67
	14600.00	90.00	180.00	7262.00	7578.53	-7578.08	85.29	0.00	400494.59	564933.42	N 32 6 3.66	W 104 15 25.67
	14700.00	90.00	180.00	7262.00	7678.53	-7678.08	85.29	0.00	400394.60	564933.42	N 32 6 2.67	W 104 15 25.67
	14800.00	90.00	180.00	7262.00	7778.52	-7778.08	85.29	0.00	400294.61	564933.42	N 32 6 1.68	W 104 15 25.67
	14900.00	90.00	180.00	7262.00	7878.52	-7878.08	85.29	0.00	400194.62	564933.42	N 32 6 0.69	W 104 15 25.67
	15000.00	90.00	180.00	7262.00	7978.52	-7978.08	85.29	0.00	400094.63	564933.42	N 32 5 59.70	W 104 15 25.67
	15100.00	90.00	180.00	7262.00	8078.51	-8078.08	85.29	0.00	399994.64	564933.42	N 32 5 58.71	W 104 15 25.68
	15200.00	90.00	180.00	7262.00	8178.51	-8178.08	85.28	0.00	399894.65	564933.42	N 32 5 57.72	W 104 15 25.68
	15300.00	90.00	180.00	7262.00	8278.50	-8278.08	85.28	0.00	399794.66	564933.42	N 32 5 56.73	W 104 15 25.68
	15400.00	90.00	180.00	7262.00	8378.50	-8378.08	85.28	0.00	399694.67	564933.42	N 32 5 55.74	W 104 15 25.68
	15500.00	90.00	180.00	7262.00	8478.50	-8478.08	85.28	0.00	399594.67	564933.42	N 32 5 54.75	W 104 15 25.68
	15600.00	90.00	180.00	7262.00	8578.49	-8578.08	85.28	0.00	399494.68	564933.42	N 32 5 53.76	W 104 15 25.68
	15700.00	90.00	180.00	7262.00	8678.49	-8678.08	85.28	0.00	399394.69	564933.41	N 32 5 52.77	W 104 15 25.68
	15800.00	90.00	180.00	7262.00	8778.49	-8778.08	85.28	0.00	399294.70	564933.41	N 32 5 51.78	W 104 15 25.68
	15900.00	90.00	180.00	7262.00	8878.48	-8878.08	85.28	0.00	399194.71	564933.41	N 32 5 50.79	W 104 15 25.68
	16000.00	90.00	180.00	7262.00	8978.48	-8978.08	85.28	0.00	399094.72	564933.41	N 32 5 49.80	W 104 15 25.68
	16100.00	90.00	180.00	7262.00	9078.48	-9078.08	85.28	0.00	398994.73	564933.41	N 32 5 48.81	W 104 15 25.68

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	16200.00	90.00	180.00	7262.00	9178.47	-9178.08	85.28	0.00	398894.74	564933.41	N 32 5 47.83	W 104 15 25.68
	16300.00	90.00	180.00	7262.00	9278.47	-9278.08	85.28	0.00	398794.75	564933.41	N 32 5 46.84	W 104 15 25.69
	16400.00	90.00	180.00	7262.00	9378.46	-9378.08	85.28	0.00	398694.76	564933.41	N 32 5 45.85	W 104 15 25.69
	16500.00	90.00	180.00	7262.00	9478.46	-9478.08	85.28	0.00	398594.77	564933.41	N 32 5 44.86	W 104 15 25.69
	16600.00	90.00	180.00	7262.00	9578.46	-9578.08	85.28	0.00	398494.78	564933.41	N 32 5 43.87	W 104 15 25.69
	16700.00	90.00	180.00	7262.00	9678.45	-9678.08	85.28	0.00	398394.79	564933.41	N 32 5 42.88	W 104 15 25.69
	16800.00	90.00	180.00	7262.00	9778.45	-9778.08	85.28	0.00	398294.79	564933.41	N 32 5 41.89	W 104 15 25.69
	16900.00	90.00	180.00	7262.00	9878.45	-9878.08	85.28	0.00	398194.80	564933.41	N 32 5 40.90	W 104 15 25.69
Cimarex Wigeon 23 Federal Com 4H - PBHL [330' FSL, 660' FEL]	16982.93	90.00	180.00	7262.00	9961.37	-9961.01	85.28	0.00	398111.88	564933.41	N 32 5 40.08	W 104 15 25.69

Survey Type: Non-Def Plan

Survey Error Model: ISCWSA Rev 0 *** 3-D 95.000% Confidence 2.7955 sigma

Survey Program:

Description	Part	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Survey Tool Type	Borehole / Survey
	1	0.000	16982.931	1/100.000	30.000	30.000	SLB_MWD-STD	Original Borehole / Cimarex Wigeon 23 Federal Com 4H Rev1